

SMALL-SCALE FEATURES IN PULSATING AURORA

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ABSTRACT: A field study was conducted from March 12-16, 2002 using a narrow-field intensified CCD camera installed at Churchill, Manitoba. The camera was oriented along the local magnetic zenith where small-scale black auroral forms are often visible. This analysis focuses on such forms occurring within a region of pulsating aurora. The observations show black forms with irregular shape and nonuniform drift with respect to the relatively stationary pulsating patches. The pulsating patches occur within a diffuse auroral background as a modulation of the auroral brightness in a localized region. The images analyzed show a decrease in the brightness of the diffuse background in the region of the pulsating patch at the beginning of the 'off' phase of the modulation. Throughout the off phase the brightness of the diffuse aurora gradually increases back to the average intensity. The time constant for this increase is measured as the first step toward determining the physical process.